ESRD Special Project

Developing Clinical Performance Measures for the Care of Patients with End Stage Renal Disease

Phase II:

2000 Study of ESRD Clinical Performance Measures: Reliability Report

Deliverable #23
Reliability Testing Report on the 2000 CPMs Data Collection

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Introduction

In 1999, Health Care Financing Administration (HCFA) contracted with PRO-West, a Seattle-based, nonprofit, health care quality improvement organization, to analyze the inter-rater reliability of the data collection associated with the 2000 Clinical Performance Measures (CPMs) for end-stage renal disease (ESRD). This report presents the results of the inter-rater reliability study.

Background

In 1994, HCFA collaborated with the ESRD Networks and the renal community to begin a new approach to assessing and improving health care provided to Medicare ESRD patients—the ESRD Health Care Quality Improvement Program (HCQIP). The key goal of the ESRD HCQIP is to increase, to the greatest extent possible, the number of ESRD patients who receive treatment consistent with current standards of care.

The first activity conducted as part of the ESRD HCQIP was to initiate the National/Network ESRD Core Indicators Project (CIP). The ESRD CIP was HCFA's first nationwide population-based study designed to assess and identify opportunities to improve the care of patients with ESRD. This project established the first consistent clinical database for ESRD. The elements included in the database represent clinical measures thought to be indicative of key components of care surrounding dialysis. As such, the data points were considered "indicators" useful for triggering improvement activities.

In 1998, HCFA responded to Section 4558(b) of the Balanced Budget Act (BBA) by initiating a project to develop CPMs based on the National Kidney Foundation-Kidney Disease Outcomes Quality Initiative (DOQI). HCFA contracted with PRO-West to develop CPMs in each of the four topic areas addressed in the K/DOQI guidelines. Sixteen ESRD CPMs were developed: five for hemodialysis adequacy, three for peritoneal dialysis adequacy, four for anemia management, and four for vascular access. These initial CPMs were intended to assist dialysis facility staff, ESRD Networks, dialysis patients, and other stakeholders in conducting quality improvement initiatives and activities.

For information regarding the development of the CPMs, refer to the *1999 Annual Report, End-Stage-Renal-Disease Clinical Performance Measures Project* on the Internet at www.hcfa.gov/quality/3m.htm.

On March 1, 1999, the ESRD CIP was merged with the ESRD CPM Project and this project is now known as the ESRD CPM Project. The ESRD CPMs overlap considerably with the core indicators, although a number of new measures were introduced, such as measures for assessing vascular access.

During the summer of 2000, the collection of clinical data for the CPMs project was conducted on a national random sample of medical records for adult ESRD patients (age ≥18 years) and on a national random sample of hemodialysis facilities. Specifically, the sampled populations included in-center hemodialysis patients, stratified by Network area, peritoneal dialysis patients, and hemodialysis facilities. Data for the selected measures were first abstracted by dialysis facility staff. Five percent of the records were re-abstracted by Network staff. PRO-West then conducted statistical analyses to assess the extent to which there was concurrence between the data abstracted by facility and Network staff.

Project Methods

Statistical Methods

The inter-rater reliability analysis was conducted using SAS for Windows version 8.1 to compute agreement rates, concurrence, kappa statistics, and t-test statistics based on means.

Some continuous data were re-coded as categorical data for the purpose of generating kappa statistics (e.g.: table 6 and table 7). As a result, some of the facility-abstracted data and Network re-abstracted data may fall into the

same category, even though they are not exactly the same numbers. For example, in Table 6, where hemoglobin ≥ 9 gm/dL, the cut-point used to create categorical data was 9 gm/dL. The facility abstractor could have reported 11 gm/dL, and the Network re-abstractor could have reported
10 gm/dL. According to the categorical data, both these items would be classified as being above 9 gm/dL, but they are not identical numbers. (The designated cut-points for re-coding the categorical data were provided by HCFA.)

For items that were collected in multiple months, such as the three reported hemoglobins (collected from October 1999 to December 1999), one of the three months was randomly selected and analyzed for each patient.

All missing values were included in analyses. For many items the missing values represented a significant proportion of the responses. In such cases, missing values may artificially inflate the level of concurrence.

Additionally, the analysis in this report did not take into account any skip patterns on the data collection forms; therefore all available records for each selected item were analyzed independently.

Agreement Rates

Comparison of continuous data from the facility and Network was conducted by means of agreement rate analysis. Although there is no criterion standard for acceptable levels of agreement, we considered an acceptable agreement rate to be ≥ 80%.

Concurrence

Concurrence analysis is defined as the proportion of cases for which responses from the facility and the Network resulted in the same classification of the measurement (for instance, as being present, missing, or having met the set criteria).

Concurrence analysis was employed for measures using categorical data. The method of calculation is shown in Table 1. We considered an acceptable target to be ≥ 90%, although, as with agreement rates, there is no general standard for acceptable levels of concurrence.

Kappa Statistics

The kappa statistic is commonly used to assess concurrence of categorical ratings as determined by two raters. Although there is no "gold standard" for acceptable ranges for kappa, kappa values of 0.4 to 0.59 typically reflect moderate agreement, 0.6 to 0.79 substantial agreement, and 0.8 to 1.0 almost perfect agreement.[1] Furthermore, for tables where the number of rows did not equal the number of columns (tables 11, 14, 19, 21, 38, 45, and 48), one observation was created in at least one cell of the missing row and/or column. This observation contained a value close to zero, which did not affect the kappa statistic. Thus allowing the missing rows and/or columns to be included in the table, so that a kappa statistic can be calculated.

T-Test Statistics Based on Means

In table 3 and table 24, the results of paired t-tests show the extent of significant differences between facility data and Network data. P-values < 0.05 were considered to be statistically significant.

Data Collection

Three data collection forms were used in the ESRD CPM project. One form was used to abstract the records of in-center hemodialysis patients, one was used to abstract the records of peritoneal dialysis patients, and one was used to assess certain facility policies related to the hemodialysis adequacy CPMs. Facility staff conducted the abstractions in the summer of 2000; Network staff conducted re-abstractions in the fall. Both the facility and Network data sets were entered into a computer database at each Network.

[1] Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics*. 1997;33:159-74.

Concurrence analysis for the in-center hemodialysis and peritoneal dialysis samples was conducted by using the patient identification number and pairing the facility data with the Network data. Concurrence analysis for the facility sample was conducted by using the facility number and pairing the facility data with the Network data.

Sample and Measures: Hemodialysis CPMs

Staff from 2,877 hemodialysis facilities abstracted data from the medical records of 8,697 randomly selected adult hemodialysis patients who received care from October 1999 through December 1999. During fall 2000, staff from ESRD Networks re-abstracted 450 of these medical records, or approximately 5% of the original 8,697 records.[2] Of the 450 re-abstracted records, 27 (6%) could not be definitely matched to records abstracted by facility staff. Therefore, data from those records were not included in the inter-rater reliability analysis.

The inter-rater reliability statistics for the facility and Network data were calculated for the following items:

- Adequacy of dialysis data (recorded Kt/V)
- Method used to measure Kt/V
- Anemia management (hemoglobin ≥ 9 gm/dL and hemoglobin ≥ 11 gm/dL)
- Transferrin saturation ≥ 20%
- Serum ferritin concentration ≥ 100 ng/mL
- Epoetin dose prescription (Y/N)
- Prescribed route of epoetin administration
- Serum albumin values (≥ 3.5 gm/dL or ≥ 3.2 gm/dL based on laboratory method used)
- Laboratory method used to measure serum albumin
- The type of access used on the last hemodialysis session on or between October 1, 1999 and December 31, 1999
- Reason for catheter, if used for access, between October 1, 1999 and December 31, 1999
- Catheter duration (≥ 90 days), if used for access, between October 1, 1999 and December 31, 1999
- Presence of routine monitoring for stenosis and the method used for monitoring, when synthetic or bovine grafts were used for access
- The type of access used at the initiation (re-initiation) of the first time hemodialysis, if between January 1, 1999 and August 31, 1999
- Limb amputation (Y/N)
- Number of scheduled hemodialysis times per week (for the first recorded dialysis prescription during the study period)

Sample and Measures: Peritoneal Dialysis CPMs

Staff from 411 peritoneal dialysis facilities abstracted data from the medical records of 1,729 randomly selected adult peritoneal dialysis patients who received care from October 1999 through March 2000. ESRD Network staff re-abstracted 89 of these medical records, or approximately 5% of the 1,729 medical records originally abstracted by dialysis facility staff. All 89 re-abstracted records matched the records abstracted by facility staff.

The inter-rater reliability statistics for the facility and Network data were calculated for the following items:

- Adequacy of dialysis data (recorded Kt/V)
- Method used to measure Kt/V
- Reported creatinine clearance
- Creatinine clearance corrected by body surface (Y/N)
- Anemia management (hemoglobin ≥ 9 gm/dL and hemoglobin ≥ 11 gm/dL)
- Transferrin saturation ≥ 20%
- Serum ferritin concentration ≥ 100 ng/mL
- Epoetin dose prescription (Y/N)
- Prescribed route of epoetin administration

[2] The number of re-abstracted hemodialysis and peritoneal dialysis cases was minimized to decrease costs and impact on Network and facility staff.

- Serum albumin values(≥3.5 gm/dL or ≥3.2 gm/dL based on laboratory method used)
- Laboratory method used to measure serum albumin
- Number of scheduled times per week (for the first recorded dialysis prescription during the study period)
- Total number of exchanges per 24 hours for CAPD patients (for the first recorded dialysis prescription during the study period)
- Total number of exchanges during nighttime for cycler patients (for the first recorded dialysis prescription during the study period)
- Total number of exchanges during daytime for cycler patients (for the first recorded dialysis prescription during the study period)
- Prescription changed (Y/N) (for the first recorded dialysis prescription during the study period)

Sample and Measures: Hemodialysis Facility Forms

Staff from 173 randomly selected hemodialysis facilities abstracted data regarding facility policies from facility-specific forms. Six of 173 forms (3.5%) were not re-abstracted by Network staff (reasons unknown); therefore, the data abstracted from the six facility forms were not included in this inter-rater reliability analysis.

The inter-rater reliability statistics for the facility and Network data were calculated for the following items:

- As of October 1, 1999, does the facility have a written policy regarding the method of post-dialysis BUN sampling? If so, is there documentation of compliance with that policy during the calendar year of 1999?
- If a facility reuses dialyzers, did the facility pre-volume 95% to 100% of the dialyzers intended for reuse? Data on other selected questions are presented as well.

Results

Hemodialysis CPMs

Matched data collection forms were available for 423 facility abstracted and Network re-abstracted medical records.

Table 2 summarizes the comparison between facility and Network categorical data for selected hemodialysis CPMs (excluding measures related to access). In most cases, there was substantial agreement for measures relating to adequacy of dialysis, anemia management, and serum albumin values.

Table 3 provides the comparison of means for continuous facility and Network data for selected hemodialysis CPMs (excluding measures related to access). Overall, the selected hemodialysis measures were nearly identical between the two data sets, except for serum albumin values by BCG (bromcresol green) method, whose p-value was less than .05 (meaning a statistically significant difference between the two raters).

Tables 4 through 21 provide the inter-rater reliability analysis for each of the tested measures, including those related to access. When the reported Kt/V ≥ 1.2 was used as a cutoff threshold for adequacy of dialysis, the kappa was 0.74, indicating substantial agreement. However, there was only moderate agreement (kappa = 0.54) between facility abstractors and Network abstractors regarding the method used to calculate the reported Kt/V. Likewise, the kappa statistics indicated substantial or nearly perfect agreement for all anemia management and serum albumin measures.

Concurrence regarding the types of access used were a little less than acceptable and ranged from 88% to 89%. The kappa statistic for reason for catheter, catheter duration, and presence of routine monitoring for stenosis reflected substantial agreement between both sets of abstractors. However, the kappa statistic for the different types of stenosis monitoring methods were less than acceptable (ranged from .05 to .3), hence showing very poor agreement.

Concurrence regarding the presence of an amputation was statistically acceptable (91%), and the kappa of 0.53 indicates moderate agreement. However, Networks did not document amputations for 8 of the 31 patients (26%) reported by facilities to have amputations. Further investigation into this issue may be warranted to determine the reason for this disparity.

Table 22 provides agreement rates for facility data to Network data for selected hemodialysis measures. The agreement rates for the pre- and post-dialysis BUNs were acceptable (91% and 90%, respectively), but the rates for EPO dosage and pre-post-dialysis weights were relatively low.

Peritoneal Dialysis CPMs

Matched data collection forms were available for 89 facility-abstracted and Network re-abstracted medical records. A fairly high level of concurrence between the facility and the Network data was found.

Table 23 summarizes the comparison between facility-abstracted and Network re-abstracted categorical data for selected peritoneal dialysis CPMs. As was the case with hemodialysis, substantial agreement existed for measures relating to dialysis adequacy, anemia management, and serum albumin.

Table 24 compares means for continuous facility data and Network data for selected peritoneal dialysis CPMs. There is no statistically significant difference between the data abstracted by facility and Network staff for the adequacy of dialysis, anemia management, and serum albumin measures.

Tables 25 through 42 present the concurrence analysis for each of the tested measures. Concurrence between the facility staff and the Network staff on the presence of a particular value in the facility record ranged from 76% (method used to calculate the V in Kt/V_{urea}) to 97% (number of scheduled dialysis per week).

Concurrence regarding the presence of an amputation was statistically acceptable (90%), although the kappa was low at 0.27 (this may be due in part to the relatively low incidence rate for amputations). However, for 10% of the cases (9 of the 89 cases), the facility data and the Network data did not match. Further investigation into this issue may be warranted to determine the reason for this disparity.

Table 43 shows agreement rates for facility data to Network data for selected peritoneal dialysis measures. The agreement rates for nine of the 11 (82%) selected items were acceptable (the acceptable rates ranged from 82% to 91%). For the other two items, EPO dosage and weekly creatinine clearance, the agreement rates were relatively low.

Hemodialysis Facility Forms

Tables 44 through 51 show level of concurrence regarding the facilities' policies for post-dialysis BUN sampling and the reuse of dialyzers. Among 124 facilities that reported a sampling policy consistent with the CPM (15 to 60 seconds after slowing or stopping blood flow), Networks concurred with the facility response 119 (96%) of those times. For those 119 cases, it is unknown whether the Networks visited the facility and saw the facility's written policy or received a copy of the facility's written policy. It is known that some Network staff queried the facility staff via telephone. The data collection was complicated by the fact that the person at the facility answering this question may or may not have been the person who originally completed the abstraction form.

Table 46 shows concurrence regarding auditing of adherence to the post-dialysis BUN sampling policy. The level of concurrence for auditing the post-BUN dialysis sampling policy was 70% and the kappa was 0.45, which shows a certain amount of disagreement between facility and Network data. The type of documentation needed to confirm adherence to a written policy during 1999 was not uniformly obtained across Networks. There are also questions regarding how complete the data are.

Table 47 shows a high level of concurrence regarding whether or not a facility re-used dialyzers (kappa = 0.91; 96% concurrence). However, as shown in Table 48, inter-rater reliability was lower for whether a facility pre-volumed 95% to 100% of dialyzers intended for reuse. Networks concurred with 81 of the 94 (86.1%) facility responses that facilities pre-volumed 95% to 100% of dialyzers intended for reuse. It is unknown to what extent the Networks obtained the follow-up information from the same person, or from a different person, who originally completed the form. Kappa values reflected only moderate levels of agreement regarding other approaches to inferring TCV for dialyzers.

Conclusions

In general, a high rate of agreement existed between data abstraction conducted by dialysis facilities and re-abstraction of records by ESRD Network staff. Among the hemodialysis and peritoneal dialysis cohorts, users can have confidence that the quality of the ESRD CPM data related to dialysis adequacy and to anemia management is not adversely influenced by the fact that the data are self-reported by dialysis facilities.

Several items related to vascular access proved more difficult for ESRD Networks to confirm, such as type of access, reason for catheter, duration of catheter use, and presence of routine monitoring for stenosis. This difficulty may be partly due to the skip patterns built into the data collection forms (that may have been ignored or may have been confusing) or may be related to confusion regarding the different types of vascular access.

Additionally, several items related to the facility form also proved more difficult for ESRD Networks to confirm, such as the facilities' written policy and compliance to the written policy regarding post-dialysis BUN sampling, and the proportion of reprocessed dialyzers for which total cell volume was measured. As with the same items related to vascular access, this difficulty may also be due to the skip patterns built into the data collection forms, or related to confusion between the different written policy categories, or related to how the data is collected for the different audit questions.

One limitation of this study is the relatively small number of cases that could be re-abstracted with available resources. It is also important to note that this study examined inter-rater reliability rather than validity. For instance, if a record entry listed the method used to calculate the reported Kt/V as being Daugirdas II, the facility abstractor and the Network re-abstractor might concur on Kt/V method even if the recorded Kt/V entry was missing. A more comprehensive validation study would require access to operative reports or other data sources that were not available for this study. Thus, future efforts to assess compliance with the ESRD CPMs based on the DOQI guidelines might require alternative data collection strategies not currently used in HCFA's ESRD CPM Project.

TABLE 1: Calculation of data concurrence

Network Data

Facility Data		Missing	-	+	Total
	Missing	a	b	c	a + b + c
	-	d	e	f	d + e + f
	+	g	h	i	g + h + i
	Total	a + d + g	b + e + h	c + f + i	Total

$$\text{Level of concurrence} = \frac{a + e + i}{\text{Total}} \times 100$$

NOTE: Cells a, e, and i represent concurrence—instances when both Network and facility staff reported the same value for a particular item. On the other hand, cells b, c, d, f, g, and h represent cases where there was not concurrence between the two sources of data on a value for a particular item.

TABLE 2: Comparison of categorical data abstracted by dialysis facility staff to categorical data re-abstracted by ESRD Network staff for selected hemodialysis measures (excluding measures related to vascular access)

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by Network Staff	Kappa
ADEQUACY OF DIALYSIS			
Reported Kt/V			
Kt/V ≥1.2	82%	82%	.74
Scheduled Dialysis Times Per Week			
Scheduled dialysis < 3 times per week	1%	1%	n/a
ANEMIA MANAGEMENT			
Hemoglobin			
Hemoglobin ≥ 9 gm/dL	96%	97%	.85
Hemoglobin ≥ 11 gm/dL	68%	69%	.86
Transferrin Saturation			
Transferrin saturation ≥ 20%	71%	71%	.84
Serum Ferritin Concentration			
Serum ferritin concentration ≥ 100 ng/mL	87%	88%	.86
SERUM ALBUMIN			
Serum albumin (≥ 3.5 gm/dL [BCG] or ≥ 3.2 gm/dL [BCP])	83%	84%	.77

BCG = bromcresol green
BCP = bromcresol purple
n/a = Kappa is computed only for tables where the number of rows equals the number of columns.
The number of matched facility and Network data collection forms was 423.

TABLE 3: Comparison of means for continuous data abstracted by dialysis facility staff to continuous data re-abstracted by ESRD Network staff for selected hemodialysis measures (excluding measures related to vascular access)

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by Network Staff	p-value
ADEQUACY OF DIALYSIS			
Reported Kt/V			
Mean	1.49 (n=351)	1.52 (n= 337)	.43
Minimum – Maximum	-0.01 – 3.22	0.74 – 3.22	
Pre-Dialysis BUN (mg/dL)			
Mean	60.39 (n= 392)	60.05 (n= 391)	.64
Minimum – Maximum	18.00 – 126.00	18.00 – 114.00	
Post-Dialysis BUN (mg/dL)			
Mean	18.02 (n= 372)	18.00 (n= 368)	.51
Minimum – Maximum	3.00 – 75.00	3.00 – 75.00	
Pre-Dialysis Weights (lbs/kgs)			
Mean	86.40 (n= 391)	86.31 (n= 387)	.68
Minimum – Maximum	35.50 – 275.00	35.50 – 275.00	
Post-Dialysis Weights (lbs/kgs)			
Mean	83.70 (n= 381)	83.46 (n= 378)	.63
Minimum – Maximum	35.00 – 263.80	35.20 – 263.00	
Scheduled Dialysis Times Per Week			
Mean	3 (n= 385)	3 (n= 387)	.66
Minimum – Maximum	2.00 - 6.00	2.00 - 4.00	
ANEMIA MANAGEMENT			
Hemoglobin (gm/dL)			
Mean	11.54 (n= 397)	11.54 (n= 393)	.78
Minimum – Maximum	7.50 - 16.00	6.50 - 16.00	
Transferrin Saturation (%)			
Mean	29.62 (n= 283)	28.77 (n= 273)	.13
Minimum – Maximum	6.00 - 116.00	6.00 - 93.00	
Serum Ferritin Concentration (ng/mL)			
Mean	464.61 (n= 213)	459.24 (n= 198)	.91
Minimum – Maximum	12.00 – 4,040.00	12.00 – 4,040.00	
Epoetin Dose (units per treatment)			
Mean	5,861.67 (n = 360)	5,758.12 (n = 357)	.56
Minimum – Maximum	0 – 25,000.00	0 – 25,000.00	
Mean	5,877.18 (n = 333)	5,719.05 (n = 349)	.29
Minimum – Maximum	0 – 25,000.00	0 – 25,000.00	
Mean	5,853.08 (n = 341)	5,676.09 (n = 345)	.16
Minimum – Maximum	0 – 25,000.00	0 – 25,000.00	

Clinical Indicators	Data Abstracted by Facility Staff	Data Re-Abstracted by Network Staff	p-value
SERUM ALBUMIN (gm/dL)			
Serum albumin by BCG method			
Mean	3.76 (n = 318)	3.78 (n = 325)	.02
Minimum – Maximum	1.40 – 4.90	1.80 – 4.90	
Serum albumin by BCP method			
Mean	3.46 (n = 44)	3.42 (n = 37)	.32
Minimum – Maximum	2.10 – 4.40	2.10 – 4.20	

BCG = bromcresol green
BCP = bromcresol purple
n = number of non-missing records in the sample; hence, the "n" may not be equal between the two samples

HEMODIALYSIS FORM: Adequacy of Dialysis

TABLE 4: Reported Kt/V [Question16I]

Network Data

Facility Data	Missing	< 1.2	³ 1.2	Total
Missing	58	1	16	75
< 1.2	5	53	4	62
³ 1.2	23	5	258	286
Total	86	59	278	423

Kappa = .74

Level of concurrence = $\frac{58 + 53 + 258}{423}$ = 87%

TABLE 5: Method used to calculate the reported Kt/V [Question 16J]

Network Data

Facility Data	Missing	UKM	Daugirdas II	Derived from URR	Other/ Unknown	Total
Missing	60	2	3	6	11	82
UKM	5	26	2	4	18	55
Daugirdas II	11	6	82	6	21	126
Derived from URR	6	5	7	52	14	84
Other/ Unknown	9	5	6	7	49	76
Total	91	44	100	75	113	423

Kappa = .54

Level of concurrence = $\frac{60 + 26 + 82 + 52 + 49}{423}$ = 64%

HEMODIALYSIS FORM: Anemia Management

TABLE 6: Hemoglobin ³ 9gm/dL [Question 15A]

Network Data

Facility Data	Missing	< 9 gm/dL	³ 9 gm/dL	Total
Missing	23	0	3	26
< 9 gm/dL	2	12	1	15
³ 9 gm/dL	5	1	376	382
Total	30	13	380	423

Kappa = .85

Level of concurrence = $\frac{23 + 12 + 376}{423}$ = 97%

TABLE 7: Hemoglobin ³ 11gm/dL [Question 15A]

Network Data

Facility Data	Missing	< 11 gm/dL	³ 11 gm/dL	Total
Missing	24	1	6	31
< 11 gm/dL	3	116	7	126
³ 11 gm/dL	8	5	253	266
Total	35	122	266	423

Kappa = .86

Level of concurrence = $\frac{24 + 116 + 253}{423}$ = 93%

TABLE 8: Transferrin saturation ³ 20% [Question 15F]

Network Data

Facility Data	Missing	< 20%	³ 20%	Total
Missing	121	4	8	133
< 20 %	6	73	4	83
³ 20%	18	3	186	207
Total	145	80	198	423

Kappa = .84

Level of concurrence = $\frac{121 + 73 + 186}{423}$ = 90%

TABLE 9: Serum ferritin concentration ³ 100 ng/dL [Question 15E]

Network Data

Facility Data	Missing	< 100 ng/dL	³ 100 ng/dL	Total
Missing	189	2	8	199
< 100 ng/dL	4	22	3	29
³ 100 ng/dL	14	2	179	195
Total	207	26	190	423

Kappa = .86

Level of concurrence = $\frac{189 + 22 + 179}{423}$ = 92%

HEMODIALYSIS FORM: Anemia Management

TABLE 10: Epoetin dosage prescription (Y/N) [Question 15B]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	18	2	2	22
Yes	7	354	5	366
No	4	9	22	35
Total	29	365	29	423

Kappa = .72

Level of concurrence = $\frac{18 + 354 + 22}{423}$ = 93%

TABLE 11: Prescribed route of epoetin administration [Question 15D]

Network Data

Facility Data	Missing	IV	SC	Total
Missing	40	20	2	62
IV	15	297	5	317
SC	4	8	31	43
Both	0	1	0	1
Total	59	326	38	423

Kappa = .71

Level of concurrence = $\frac{40 + 297 + 31}{423}$ = 87%

IV = intravenous

SC = subcutaneous

HEMODIALYSIS FORM: Serum Albumin

TABLE 12: Serum albumin values (≥ 3.5/3.2 gm/dL by BCG/BCP methods) [Question 17A]

Network Data

Facility Data	Known value, but missing method	< 3.5/3.2 gm/dL	≥ 3.5/3.2 gm/dL	Known method, but missing value	Total
Known value, but missing method	2	0	9	0	11
< 3.5/3.2 gm/dL	2	54	7	2	65
≥ 3.5/3.2 gm/dL	3	4	297	7	311
Known method, but missing value	0	2	5	29	36
Total	7	60	318	38	423

Kappa = .77

Level of concurrence = $\frac{2 + 54 + 297 + 29}{423}$ = 90%

BCG = bromcresol green

BCP = bromcresol purple

TABLE 13: Laboratory method used to measure serum albumin in Table 12 [Question 17B]

Network Data

Facility Data	Missing	BCG	BCP	Total
Missing	22	13	5	40
BCG	15	316	7	338
BCP	1	10	34	45
Total	38	339	46	423

Kappa = .64

Level of concurrence = $\frac{22 + 316 + 34}{423}$ = 88%

BCG = bromcresol green

BCP = bromcresol purple

HEMODIALYSIS FORM: Vascular Access

TABLE 14: The type of access used on the last hemodialysis session on or between October 1, 1999, and December 31, 1999 [Question 18A]

Network Data

Facility Data

	Missing	AV Fistula	Synthetic Graft	Bovine Graft	Catheter	Total
Missing	0	1	1	0	2	4
AV Fistula	3	87	6	0	1	97
Synthetic Graft	2	9	208	2	6	227
Bovine Graft	0	1	9	2	0	12
Catheter	0	3	3	0	75	81
Unknown	1	0	1	0	0	2
Total	6	101	228	4	84	423

Kappa = .80

Level of concurrence = $\frac{0+ 87 + 208 + 2 + 75}{423}$ = 88%

HEMODIALYSIS FORM: Vascular Access

TABLE 15: Reason for catheter, if used for access between October 1, 1999 and December 31, 1999 [Question 18B1]

Network Data

Facility Data

	Missing	Fistula or graft maturing, not ready to cannulate	Temporary interruption of fistula or graft due to clotting or revisions	All fistula or graft sites have been exhausted	No fistula or graft sties surgically created at this time	Other	Total
Missing	333	2	6	1	2	1	345
Fistula or graft maturing, not ready to cannulate	3	8	1	0	2	0	14
Temporary interruption of fistula or graft due to clotting or revisions	2	0	7	0	0	1	10
All fistula or graft sites have been exhausted	1	0	1	11	5	1	19
No fistula or graft sties surgically created at this time	0	3	2	3	17	0	25
Other	0	1	1	1	4	3	10
Total	339	14	18	16	30	6	423

Kappa = .69

Level of concurrence = $\frac{333 + 8 + 7 + 11 + 17 + 3}{423} = 90\%$

HEMODIALYSIS FORM: Vascular Access

TABLE 16: Catheter duration ($90 days), if used for access between October 1, 1999 and December 31, 1999 [Question 18B2]

Network Data

Facility Data	Missing	Yes	No	Unknown	Total
Missing	334	12	7	1	354
Yes	1	40	4	1	46
No	3	5	14	0	22
Unknown	1	0	0	0	1
Total	339	57	25	2	423

Kappa = .73

Level of concurrence = $\frac{334 + 40 + 14 + 0}{423}$ = 92%

TABLE 17: Presence of routine monitoring for stenosis, when synthetic grafts, bovine grafts, or AV fistulas were used for access between October 1, 1999 and December 31, 1999 [Question 18C1]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	78	7	14	99
Yes	8	103	48	159
No	5	15	145	165
Total	91	125	207	423

Kappa = .65

Level of concurrence = $\frac{78 + 103 + 145}{423}$ = 77%

HEMODIALYSIS FORM: Vascular Access

TABLE 17a-e: The routine stenosis monitoring method used between October 1, 1999 and December 31, 1999 when synthetic grafts, bovine grafts, or AV fistulas were used for access [Question 18C2]

17a: Color-Flow Doppler Method

Network Data

Facility Data	Missing	Yes	No	Total
Missing	368	0	5	373
Yes	5	2	0	7
No	42	1	0	43
Total	415	3	5	423

Kappa = .06

Level of concurrence = $\frac{368 + 2 + 0}{423}$ = 87%

17b: Static Venous Pressure Method

Network Data

Facility Data	Missing	Yes	No	Total
Missing	359	4	4	367
Yes	10	6	1	17
No	39	0	0	39
Total	408	10	5	423

Kappa = .15

Level of concurrence = $\frac{359 + 6 + 0}{423}$ = 86%

HEMODIALYSIS FORM: Vascular Access

17c: Dynamic Venous Pressure Method

Network Data

Facility Data	Missing	Yes	Total
Missing	262	17	279
Yes	43	61	104
No	35	5	40
Total	340	83	423

Kappa = .44

Level of concurrence = $\frac{262 + 61}{423}$ = 76%

17d: Dilution Technique

Network Data

Facility Data	Missing	Yes	No	Total
Missing	364	2	2	368
Yes	9	2	0	11
No	44	0	0	44
Total	417	4	2	423

Kappa = .05

Level of concurrence = $\frac{364 + 2 + 0}{423}$ = 87%

HEMODIALYSIS FORM: Vascular Access

17e: Other Method

Network Data

Facility Data	Missing	Yes	No	Total
Missing	331	11	1	343
Yes	19	16	3	38
No	39	3	0	42
Total	389	30	4	423

Kappa = .27

Level of concurrence = $\frac{331 + 16 + 0}{423}$ = 82%

TABLE 18: The type of access used at the initiation (re-initiation) of the first time hemodialysis, if between January 1, 1999 – August 31, 1999 [Question 19A]

Network Data

Facility Data	Missing	AV Fistula	Synthetic Graft	Catheter	Unknown	Total
Missing	347	2	9	7	1	366
AV Fistula	2	3	0	1	0	6
Synthetic Graft	5	0	7	0	0	12
Catheter	10	2	1	18	1	32
Other	0	0	0	1	0	1
Unknown	3	0	1	1	1	6
Total	367	7	18	28	3	423

Kappa = .54

Level of concurrence = $\frac{347 + 3 + 7 + 18 + 1}{423}$ = 89%

HEMODIALYSIS FORM: Vascular Access

TABLE 19: The type of access used 90 days after the date in Table 18 during the initiation (re-initiation) of hemodialysis, if between January 1, 1999 – August 31, 1999 [Question 19C]

Network Data

Facility Data	Missing/ Unknown	AV Fistula	Synthetic Graft	Catheter	Unknown	Total
Missing/ Unknown	349	2	12	3	2	358
AV Fistula	4	4	0	0	1	9
Synthetic Graft	6	0	13	0	0	19
Bovine Graft	0	0	1	0	0	1
Catheter	8	2	2	10	1	23
Unknown	1	0	1	1	0	3
Total	368	8	29	14	4	423

Kappa = .53

Level of concurrence = $\frac{349 + 4 + 13 + 10 + 0}{423} = 89\%$

HEMODIALYSIS FORM: Other Measures

TABLE 20: Limb amputation (Y/N) [Question 13]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	0	1	6	7
Yes	0	23	8	31
No	17	4	364	385
Total	17	28	378	423

Kappa = .53

Level of concurrence = $\frac{0 + 23 + 364}{423} = 91\%$

HEMODIALYSIS FORM: Other Measures

TABLE 21: Number of scheduled hemodialysis times per week [Question 16A]

Network Data

Facility Data	Missing	2	3	4	Total
Missing	24	0	13	0	37
2	1	2	1	0	4
3	6	1	369	1	377
4	0	0	1	2	3
6	1	0	1	0	2
Total	32	3	385	3	423

Kappa = .59

Level of concurrence = $\frac{24 + 2 + 369 + 2}{423}$ = 94%

Table 22: Agreement rate of data abstracted by dialysis facility staff to data re-abstracted by Network staff for selected hemodialysis measures

Measure	Agreement rate	Number of cases agreed upon	Total number of cases
Pre-dialysis BUN [Question 16B]	91%	385	423
Post- dialysis BUN [Question 16C]	90%	380	423
Pre-dialysis weight [Question 16D]	71%	302	423
Post-dialysis weight [Question 16D]	73%	309	423
EPO dose #1 [Question 15C]	79%	333	423
EPO dose #2 [Question 15C]	76%	323	423
EPO dose #3 [Question 15C]	74%	313	423
Most recent date patient returned to hemodialysis [Question 14]	64%	7	11^
Date of first access, if between January 1, 1999 – August 31, 1999 [Question 19B]	74%	17	23*

^ Approximately 97% of the data for this item were missing

* Approximately 95% of the data for this item were missing

TABLE 23: Comparison of categorical data abstracted by dialysis facility staff to categorical data re-abstracted by ESRD Network staff for selected peritoneal dialysis measures

Clinical Measures	Data Abstracted by Facility Staff	Data Re-Abstracted by Network Staff	Kappa
ADEQUACY OF DIALYSIS			
Reported Kt/V_{urea}			
$Kt/V_{urea} \geq 2.0$	64%	62%	.91
Reported Creatinine Clearance (L/wk)			
Creatinine clearance ≥ 60	64%	62%	.91
ANEMIA MANAGEMENT			
Hemoglobin			
Hemoglobin ≥ 9 gm/dL	90%	91%	.83
Hemoglobin ≥ 11 gm/dL	66%	65%	.90
Transferrin Saturation			
Transferrin saturation ≥ 20%	72%	69%	.78
Serum Ferritin Concentration			
Serum ferritin concentration ≥ 100 ng/mL	86%	88%	.77
SERUM ALBUMIN			
Serum albumin (≥ 3.2 gm/dL BCP/ ≥ 3.5 gm/dL BCG)	60%	62%	.88

BCG = bromcresol green
BCP = bromcresol purple
The number of matched facility and Network data collection forms was 89.

TABLE 24: Comparison of means for continuous data abstracted by dialysis facility staff to continuous data re-abstracted by ESRD Network staff for selected peritoneal dialysis measures

Clinical Measures	Data Abstracted by Facility Staff	Data Re-Abstracted by Network Staff	p-value
ADEQUACY OF DIALYSIS			
Reported Kt/V			
Mean	2.28 (n = 74)	2.27 (n = 71)	.59
Minimum – Maximum	1.14 - 4.15	0.76 - 4.15	
Reported Creatinine Clearance (L/wk)			
Mean	74.98 (n= 73)	73.74 (n= 69)	.34
Minimum – Maximum	26.40 - 230.10	28.80 – 230.10	
ANEMIA MANAGEMENT			
Hemoglobin (gm/dL)			
Mean	11.63 (n=80)	11.52 (n=78)	.21
Minimum – Maximum	6.40 - 18.10	6.40 - 15.40	
Transferrin Saturation (%)			
Mean	27.55 (n=64)	27.85 (n=61)	.23
Minimum – Maximum	8.0 - 93.00	10.00 - 93.00	
Serum Ferritin Concentration (ng/mL)			
Mean	353.34 (n=61)	339.35 (n=57)	.36
Minimum – Maximum	29.00 – 1,983.00	29.00 – 1,983.00	
Epoetin Dose (units per week)			
Mean	10,806.45 (n=62)	9,809.45 (n=63)	.43
Minimum – Maximum	0 – 30,000.00	0 – 30,000.00	
SERUM ALBUMIN (gm/dL)			
Serum albumin by BCG method			
Mean	3.61 (n= 66)	3.59 (n= 67)	.42
Minimum – Maximum	2.50 – 5.50	2.50 – 4.90	
Serum albumin by BCP method			
Mean	3.31 (n= 10)	3.21 (n= 8)	.36
Minimum – Maximum	2.20 – 4.60	2.20 – 4.40	

BCG = bromcresol green
BCP = bromcresol purple
n = number of non-missing records in the sample; hence, the "n" may not be equal between the two samples

PERITONEAL DIALYSIS FORM: Adequacy of Dialysis

TABLE 25: Reported Kt/V [Question 18D]

Network Data

Facility Data	Missing	< 2.0	³ 2.0	Total
Missing	14	1	0	15
< 2.0	1	26	0	27
³ 2.0	3	0	44	47
Total	18	27	44	89

Kappa = .91

Level of concurrence = $\frac{14 + 26 + 44}{89}$ = 94%

TABLE 26: Method used to calculate the V in Kt/V_{urea} [Question 18E]

Network Data

Facility Data	Missing	% Body Weight	Hume	Watson	Other	Total
Missing	14	0	0	0	0	14
% Body Weight	0	6	1	2	1	10
Hume	0	0	19	0	1	20
Watson	2	8	0	23	2	35
Other	2	1	1	0	6	10
Total	18	15	21	25	10	89

Kappa = .69

Level of concurrence = $\frac{14 + 6 + 19 + 23 + 6}{89}$ = 76%

PERITONEAL DIALYSIS FORM: Adequacy of Dialysis

TABLE 27: Reported weekly creatinine clearance [Question 18F]

Network Data

Facility Data	Missing	< 60 L/wk	³ 60 L/wk	Total
Missing	16	0	0	16
< 60 L/wk	1	25	0	26
³ 60 L/wk	3	1	43	47
Total	20	26	43	89

Kappa = .91

Level of concurrence = $\frac{16+ 25 + 43}{89}$ = 94%

TABLE 28: Creatinine clearance corrected for body surface area, using standard methods (Y/N) [Question 18G]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	15	0	0	15
Yes	5	66	1	72
No	0	2	0	2
Total	20	68	1	89

Kappa = .74

Level of concurrence = $\frac{15 + 66 + 0}{89}$ = 91%

PERITONEAL DIALYSIS FORM: Anemia Management

TABLE 29: Hemoglobin ³ 9 gm/dL [Question 15A]

Network Data

Facility Data	Missing	< 9 gm/dL	³ 9 gm/dL	Total
Missing	8	0	1	9
< 9 gm/dL	0	7	1	8
³ 9 gm/dL	3	0	69	72
Total	11	7	71	89

Kappa = .83

Level of concurrence = $\frac{8 + 7 + 69}{89}$ = 94%

TABLE 30: Hemoglobin ³ 11 gm/dL [Question 15A]

Network Data

Facility Data	Missing	< 11 gm/dL	³ 11 gm/dL	Total
Missing	6	1	0	7
< 11 gm/dL	1	27	0	28
³ 11 gm/dL	3	0	51	54
Total	10	28	51	89

Kappa = .90

Level of concurrence = $\frac{6 + 27 + 51}{89}$ = 94%

PERITONEAL DIALYSIS FORM: Anemia Management

TABLE 31: Transferrin saturation ³ 20% [Question 15F]

Network Data

Facility Data	Missing	< 20%	³ 20%	Total
Missing	21	3	0	24
< 20%	1	15	2	18
³ 20%	5	1	41	47
Total	27	19	43	89

Kappa = .78

Level of concurrence = $\frac{21 + 15 + 41}{89}$ = 87%

TABLE 32: Serum ferritin concentration ³ 100 g/mL [Question 15E]

Network Data

Facility Data	Missing	< 100 ng/mL	³ 100 ng/mL	Total
Missing	23	1	2	26
< 100 ng/mL	3	6	0	9
³ 100 ng/mL	5	0	49	54
Total	31	7	51	89

Kappa = .77

Level of concurrence = $\frac{23 + 6 + 49}{89}$ = 88%

TABLE 33: Epoetin dose prescription (Y/N) [Question 15B]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	7	3	0	10
Yes	3	59	2	64
No	0	5	10	15
Total	10	67	12	89

Kappa = .65

Level of concurrence = $\frac{7 + 59 + 10}{89}$ = 85%

TABLE 34: Prescribed route of epoetin administration [Question 15D]

Network Data

Facility Data	Missing	SC	Total
Missing	19	6	25
SC	8	56	64
Total	27	62	89

Kappa = .62

Level of concurrence = $\frac{19 + 56}{89}$ = 84%

SC = subcutaneous

PERITONEAL DIALYSIS FORM: Serum Albumin

TABLE 35: Serum albumin values (³ 3.5/3.2 gm/dL by BCG/BCP methods) [Question 16A]

Network Data

Facility Data	Missing	< 3.5/3.2 gm/dL	³ 3.5/3.2 gm/dL	Total
Missing	5	0	0	5
< 3.5/3.2 gm/dL	3	30	1	34
³ 3.5/3.2 gm/dL	2	0	48	50
Total	10	30	49	89

Kappa = .88

Level of concurrence = $\frac{5 + 30 + 48}{89}$ = 93%

BCG = bromcresol green

BCP = bromcresol purple

TABLE 36: Laboratory method used to measure serum albumin in TABLE 35 [Question 16B]

Network Data

Facility Data	Missing	BCG	BCP	Total
Missing	9	1	0	10
BCG	4	62	2	68
BCP	0	4	7	11
Total	13	67	9	89

Kappa = .69

Level of concurrence = $\frac{9 + 62 + 7}{89}$ = 88%

BCG = bromcresol green

BCP = bromcresol purple

PERITONEAL DIALYSIS FORM: Prescription

TABLE 37: Number of scheduled dialysis days per week [Question 19A]

Network Data

Facility Data	Missing	6	7	Total
Missing	14	0	0	14
6	0	1	0	1
7	3	0	71	74
Total	17	1	71	89

Kappa = .89

Level of concurrence = $\frac{14 + 1 + 71}{89}$ = 97%

PERITONEAL DIALYSIS FORM: Prescription

TABLE 38: Total number of exchanges per 24 hours for CAPD patients [Question 19B2]

Network Data

Facility Data	Missing	3	4	5	6	Total
Missing	52	0	0	0	1	53
3	0	1	1	0	0	2
4	1	0	23	0	0	24
5	1	0	1	8	0	10
Total	54	1	25	8	1	89

Kappa = .90

Level of concurrence = $\frac{52 + 1 + 23 + 8}{89} = 94\%$

TABLE 39: Total number of dialysis exchanges during the nighttime for cycler patients [Question 19C3b]

Network Data

Facility Data	Missing	3	4	5	6	7	10	Total
Missing	48	0	0	1	0	1	0	50
3	2	2	1	0	0	0	0	5
4	1	1	12	2	0	0	0	16
5	0	1	0	10	2	1	0	14
6	0	0	0	0	1	0	0	1
7	0	0	0	0	1	1	0	2
10	0	0	0	0	0	0	1	1
Total	51	4	13	13	4	3	1	89

Kappa = .75

Level of concurrence = $\frac{48 + 2 + 12 + 10 + 1 + 1 + 1}{89} = 84\%$

PERITONEAL DIALYSIS FORM: Prescription

TABLE 40: Total number of dialysis exchanges during the daytime for cycler patients [Question 19C4b]

Network Data

Facility Data	Missing	1	2	3	Total
Missing	55	1	1	0	57
1	3	11	0	1	15
2	4	0	11	0	15
3	0	0	1	1	2
Total	62	12	13	2	89

Kappa = .76

Level of concurrence = $\frac{55 + 11 + 11 + 1}{89}$ = 88%

TABLE 41: Prescription changed (Y/N) [Question 19E2]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	13	0	3	16
Yes	1	11	2	14
No	5	5	49	59
Total	19	16	54	89

Kappa = .66

Level of concurrence = $\frac{13 + 11 + 49}{81}$ = 82%

PERITONEAL DIALYSIS FORM: Other Measures

TABLE 42: Limb amputation (Y/N) [Question 13]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	1	0	2	3
Yes	0	1	1	2
No	6	0	78	84
Total	7	1	81	89

Kappa = .27

Level of concurrence = $\frac{1 + 1 + 78}{89}$ = 90%

Table 43: Agreement rate of data abstracted by dialysis facility staff to data re-abstracted by Network staff for selected peritoneal dialysis measures

Measure	Agreement rate	Number of cases agreed upon	Total number of cases
Reported Kt/V [Question 18D]	83%	74	89
Reported creatinine clearance [Question 18F]	71%	63	89
EPO dose [Question 15C]	73%	65	89
24 hour dialysate volume [Question 18H]	82%	73	89
24 hour dialysate urea nitrogen [Question 18I]	88%	78	89
24 hour dialysate creatinine [Question 18J]	87%	77	89
24 hour urine volume [Question 18K]	93%	83	89
24 hour urine urea nitrogen [Question 18L]	88%	78	89
24 hour urine creatinine [Question 18M]	90%	80	89
Serum BUN [Question 18N]	90%	89	89
Serum creatinine [Question 18M]	85%	76	89

FACILITY FORM: Post-Dialysis BUN Sampling

Table 44: Do facilities have a written policy for the timing of the post-BUN sample collection? [Question 1]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	1	0	0	1
Yes	0	152	1	153
No	1	4	8	13
Total	2	156	9	167

Kappa: .74

Level of concurrence = $\frac{1 + 152 + 8}{167}$ = 96%

FACILITY FORM: Post-Dialysis BUN Sampling

Table 45: Facilities' written policy regarding post-dialysis BUN sampling [Question 1]

Network Data

Facility Data	Missing	Immediately, without slowing blood flow	Immediately, after slowing or stopping blood flow	15-60 seconds after slowing or stopping blood flow	61-120 seconds after slowing or stopping blood flow	>2 – 15 minutes after slowing or stopping blood flow	Total
Missing	10	0	0	3	1	2	16
Immediately, after slowing or stopping blood flow	1	0	2	5	0	0	8
15-60 seconds after slowing or stopping blood flow	1	1	2	119	1	0	124
61-120 seconds after slowing or stopping blood flow	0	0	0	2	5	0	7
>2 – 15 minutes after slowing or stopping blood flow	0	0	1	5	3	3	12
Total	12	1	5	134	10	5	167

Kappa = .57

Level of concurrence = $\frac{10 + 2 + 119 + 5 + 3}{167}$ = 83%

FACILITY FORM: Post-Dialysis BUN Sampling

TABLE 46: Facilities' compliance with written policy (internal audit) regarding post-dialysis BUN sampling [Question 2]

Network Data

Facility Data	Missing	Yes, audited	No, not audited	Unknown	Total
Missing	1	0	1	0	2
Yes, audited	0	27	19	6	52
No, not audited	2	4	82	8	96
Unknown	0	2	8	7	17
Total	3	33	110	21	167

Kappa = .45

Level of concurrence = $\frac{1 + 27 + 82 + 7}{167}$ = 70%

FACILITY FORM: Reuse of Dialyzers

TABLE 47: Facilities that re-used dialyzers from October 1, 1998 to December 31, 1998 [Question 3]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	1	0	0	1
Yes	0	120	3	123
No	1	2	40	43
Total	2	122	43	167

Kappa = .91

Level of concurrence = $\frac{1 + 120 + 40}{167}$ = 96%

FACILITY FORM: Reuse of Dialyzers

TABLE 48: Facilities that pre-volumed 95-100% of dialyzers Intended for reuse [Question 3]

Network Data

Facility Data	Missing	Yes	Total
Missing	55	17	72
Yes	13	81	94
No	1	0	1
Total	69	98	167

Kappa = .62

Level of concurrence = $\frac{55 + 81}{167}$ = 81%

TABLE 49: Facilities that pre-volumed <95% of dialyzers intended for reuse [Question 3]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	143	6	2	151
Yes	5	5	1	11
No	3	1	1	5
Total	151	12	4	167

Kappa = .39

Level of concurrence = $\frac{143 + 5 + 1}{167}$ = 89%

FACILITY FORM: Reuse of Dialyzers

TABLE 50: Facilities that used batch testing and/or of an average TCV for a group of hemodialyzers to infer TCV [Question 3]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	145	7	2	154
Yes	4	5	2	11
No	2	0	0	2
Total	151	12	4	167

Kappa = .37

Level of concurrence = $\frac{145 + 5 + 0}{167}$ = 90%

TABLE 51: Facilities that used the manufacturer's product information to infer TCV [Question 3]

Network Data

Facility Data	Missing	Yes	No	Total
Missing	133	8	1	142
Yes	13	10	1	24
No	1	0	0	1
Total	147	18	2	167

Kappa = .39

Level of concurrence = $\frac{133 + 10 + 0}{167}$ = 86%